Fig. 1

Fatigue S-N Failure Curve

log(Number of Cycles to Failure)
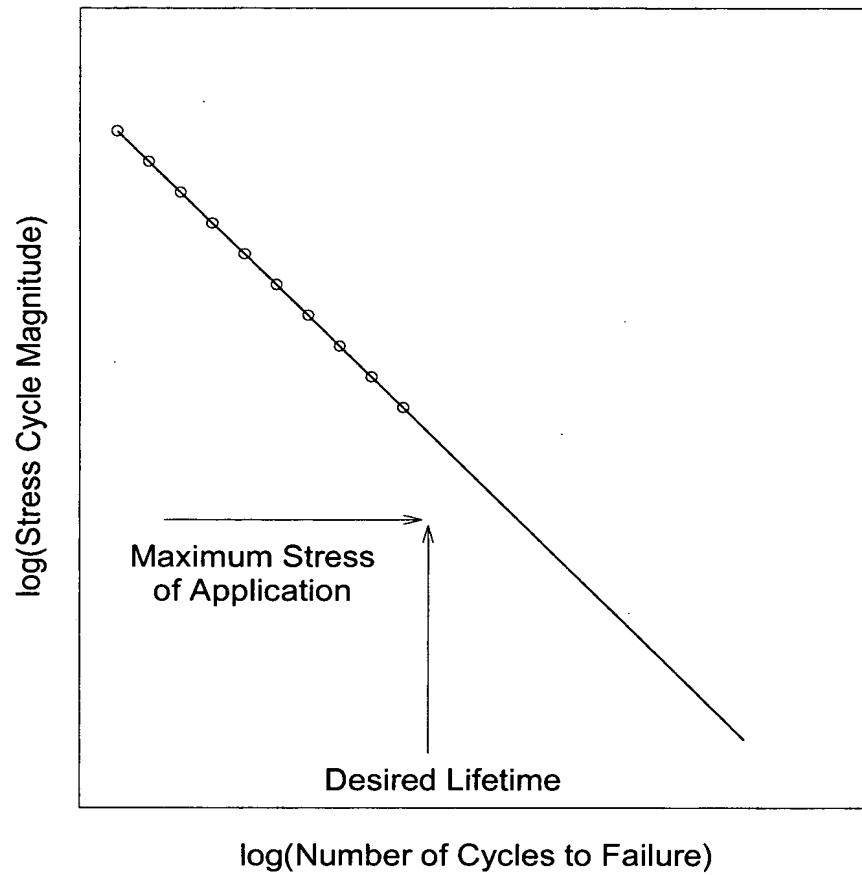
Compressive Creep Sample Geometry

Fig. 2

$\varepsilon = \Delta h/H_0$; σ = Load/Area
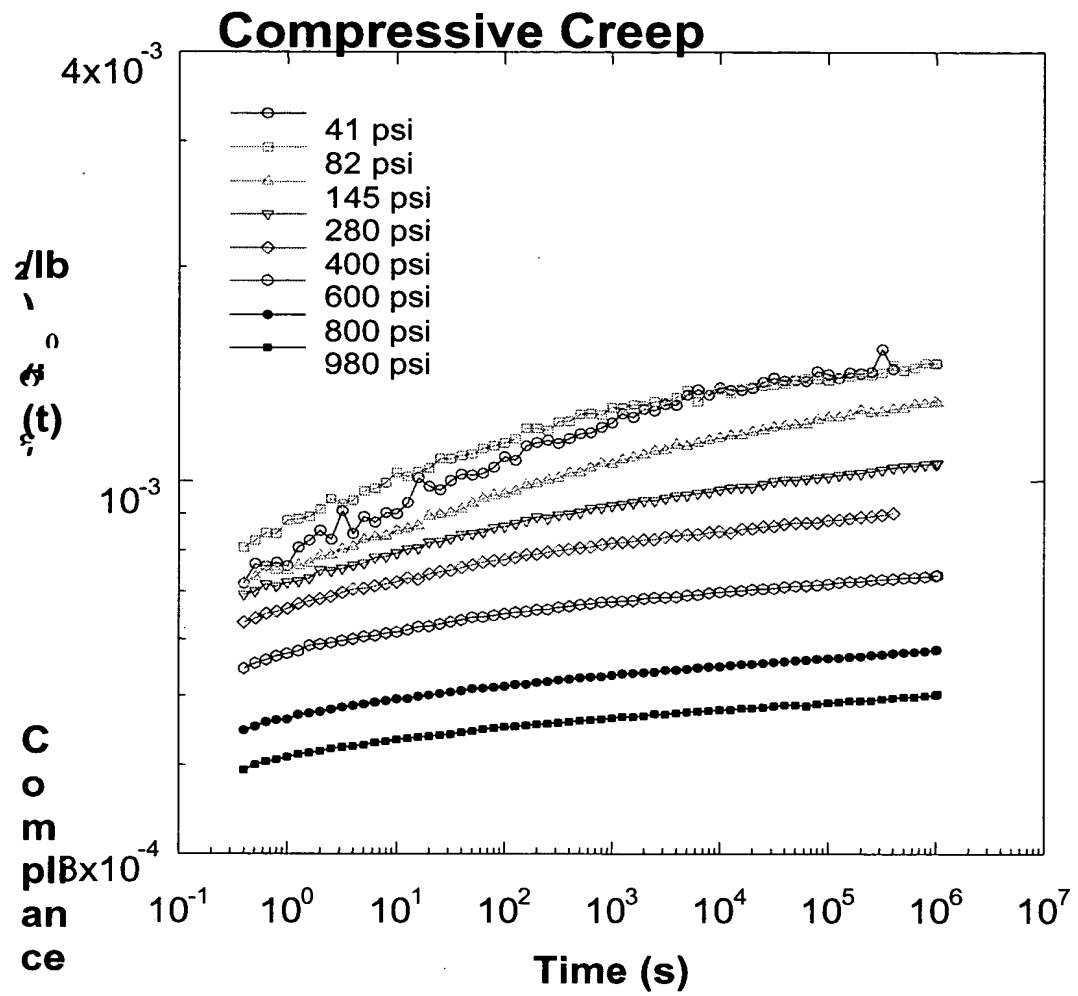
$\varepsilon(t) = D(t)\,\sigma$

Fig. 3

Fig. 4

Compressive Creep

41 psi
82 psi
145 psi
280 psi
400 psi
600 psi
800 psi
980 psi

Compliance (t), in²/lb

Time (s)

Fig. 5

**Compressive Creep Compliance @ 145 psi
and Various Temperatures**

Fig. 6

Compressive Creep Compliance Master Curve
145 psi Stress and 37°C

Legend:
- ○ 37°C
- ◻ 50°C
- △ 70°C
- ▽ 85°C
- ◇ 100°C

Y-axis: Compressive Creep Compliance, $\beta D(t)$ (in^2/lb$_f$)
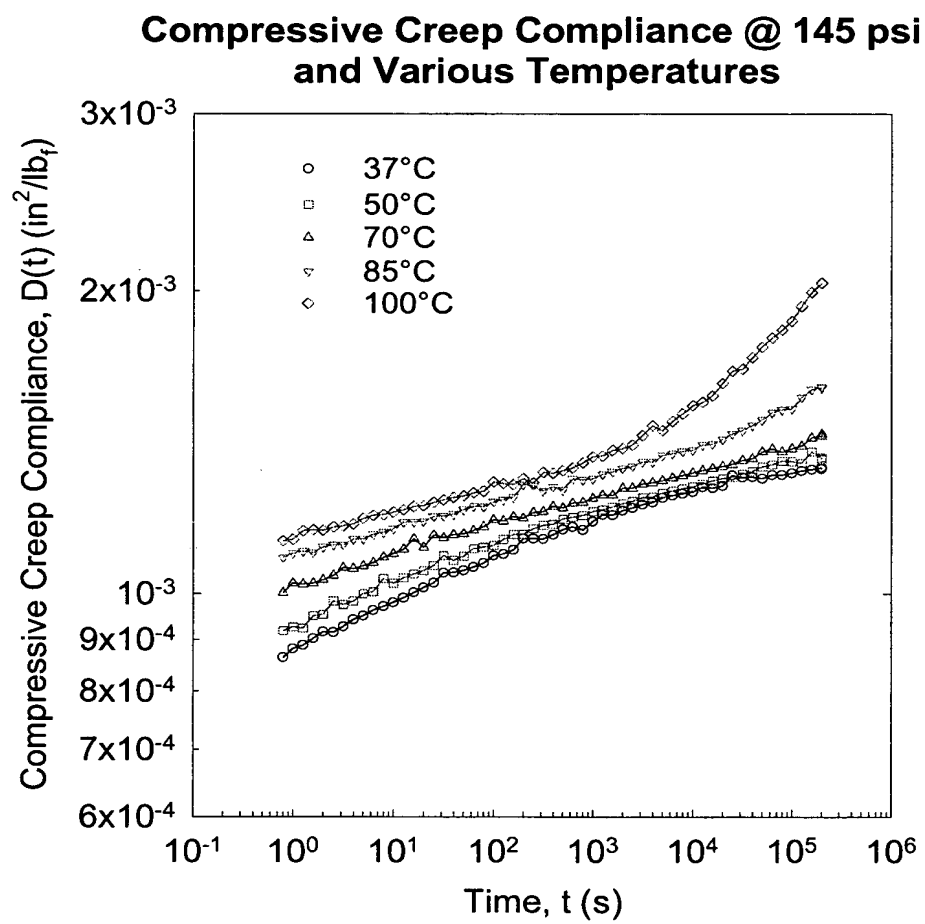
X-axis: log(Reduced Time, t/α_T (s))
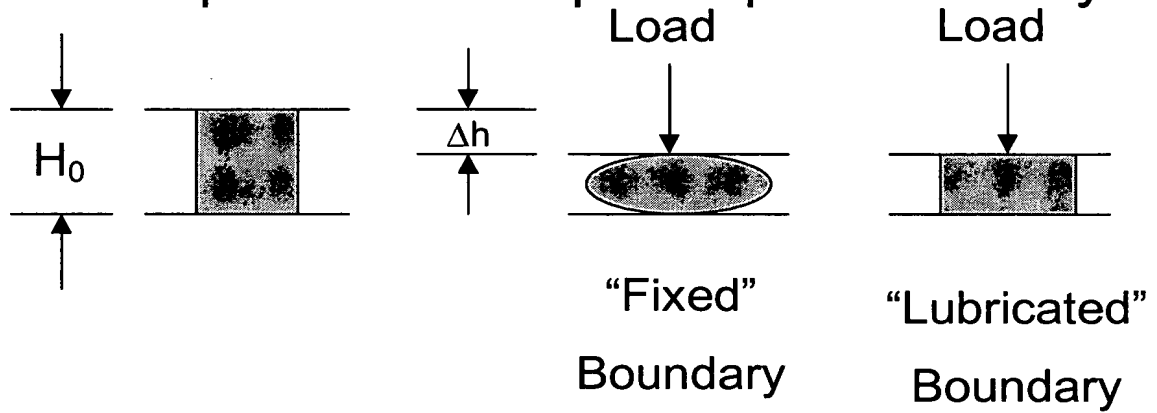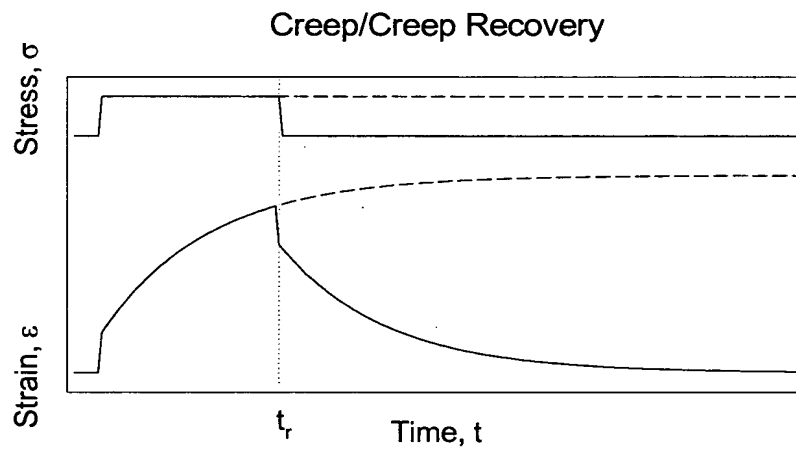
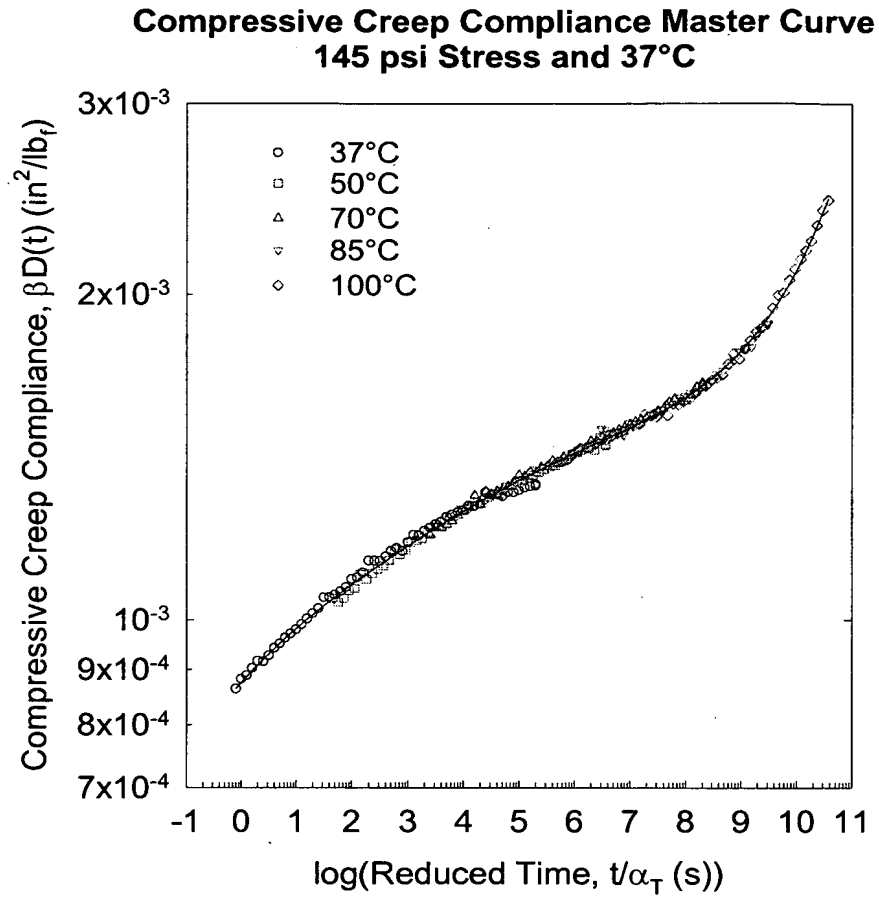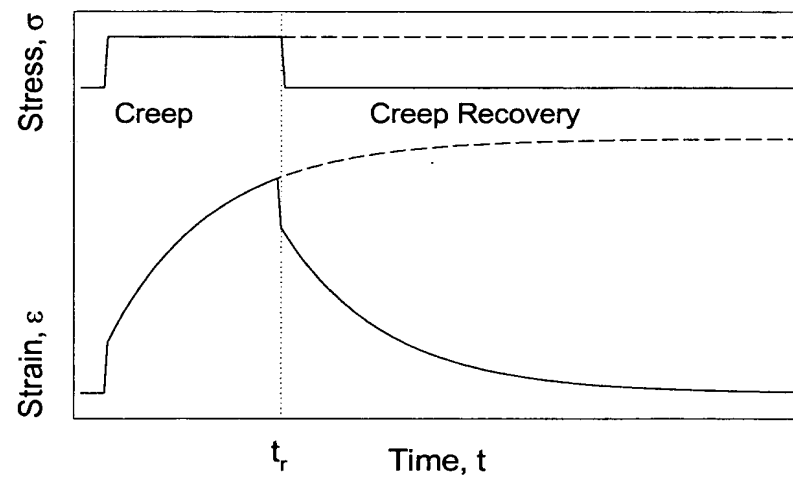# Fig. 7

Creep/Creep Recovery--Single Load Cycle

$\varepsilon(t) = \sigma_1 D(t)$ Creep Phase

$\varepsilon(t) = \sigma_1 D(t) - \sigma_1 D(t-t_r)$ Recovery Phase

Fig. 8

Compressive Creep Model for
Single Stress Cycle of 158 psi
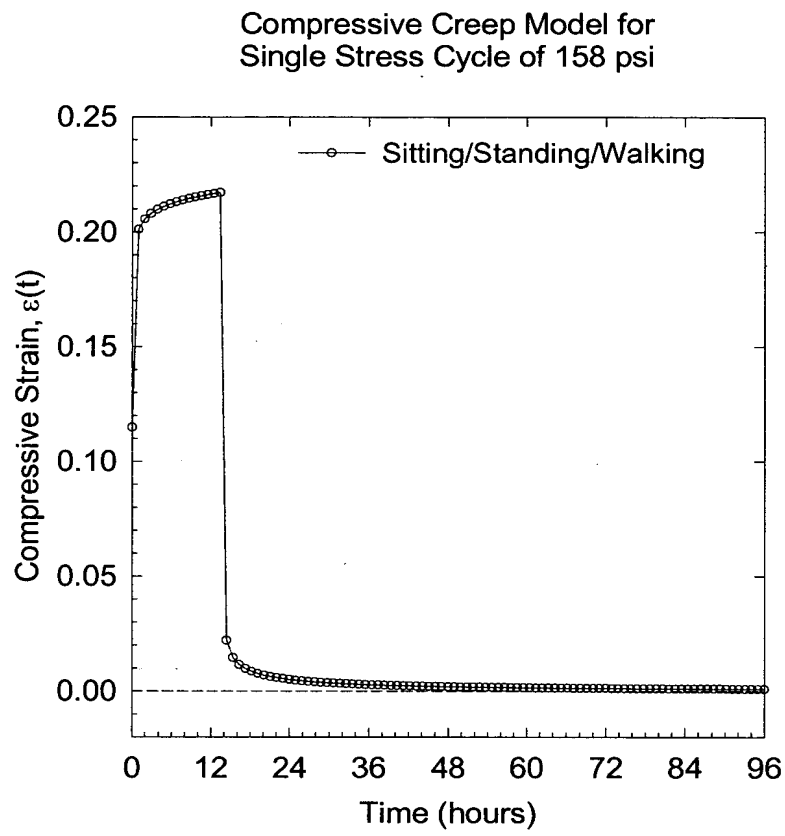
Fig. 9

Compressive Creep Model for Polymeric Component
Subjected to 100 psi Compressive Stress Cycles

(Sitting/Standing/Walking)

Total "Residual" Strain after N Days, ε_T

Contribution of Single Stress-Cycle after N Days, ε_N
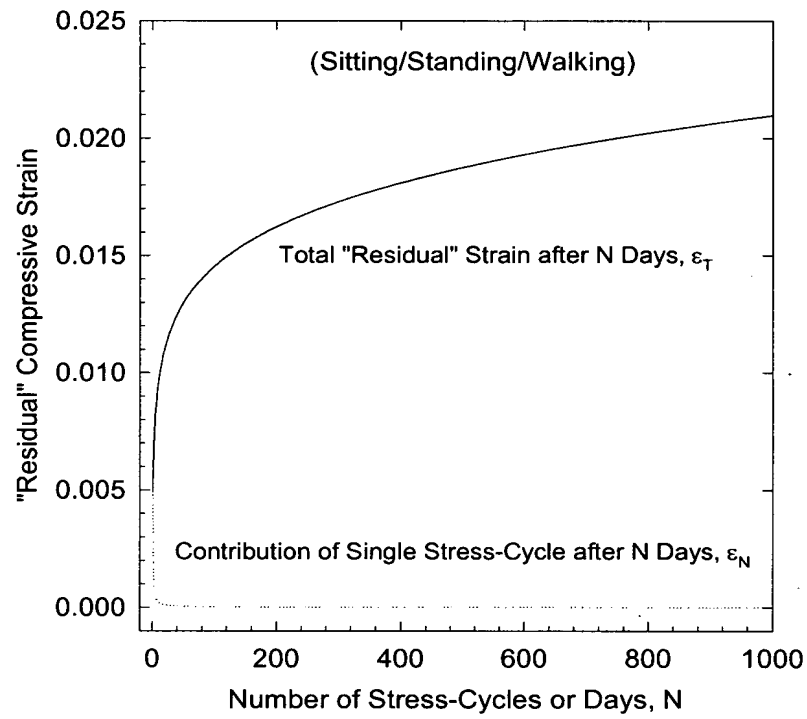
Fig. 10

Compressive Creep Model for Polymeric Component
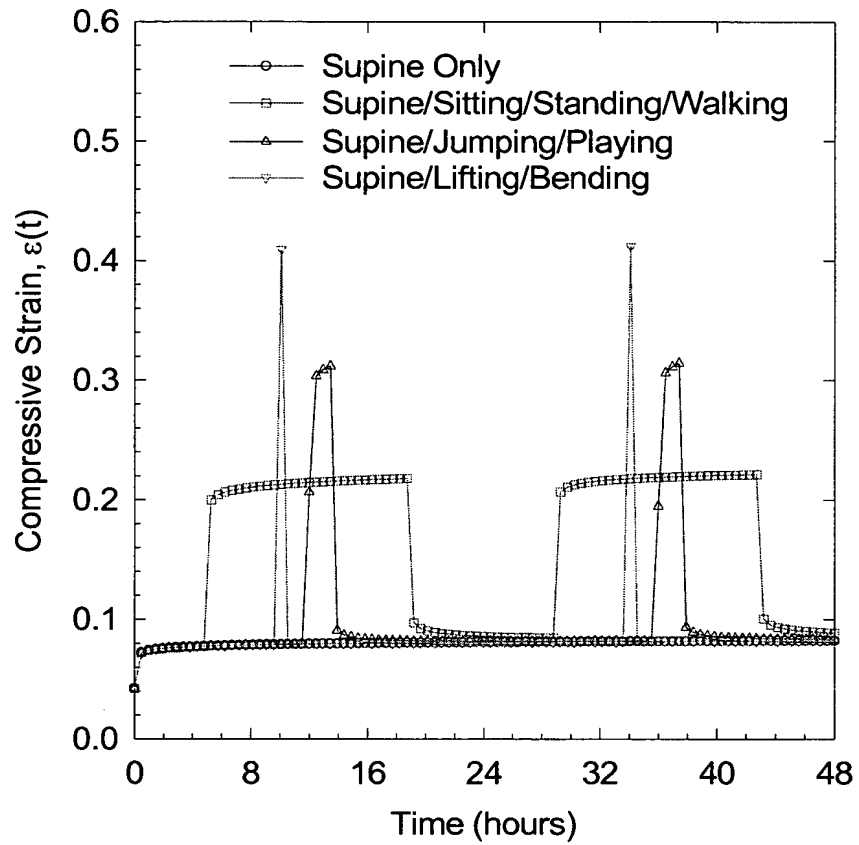Subjected to Various Compressive Loads

Fig. 11

"Residual" Strain Components for Various Activities During "Resting" Period
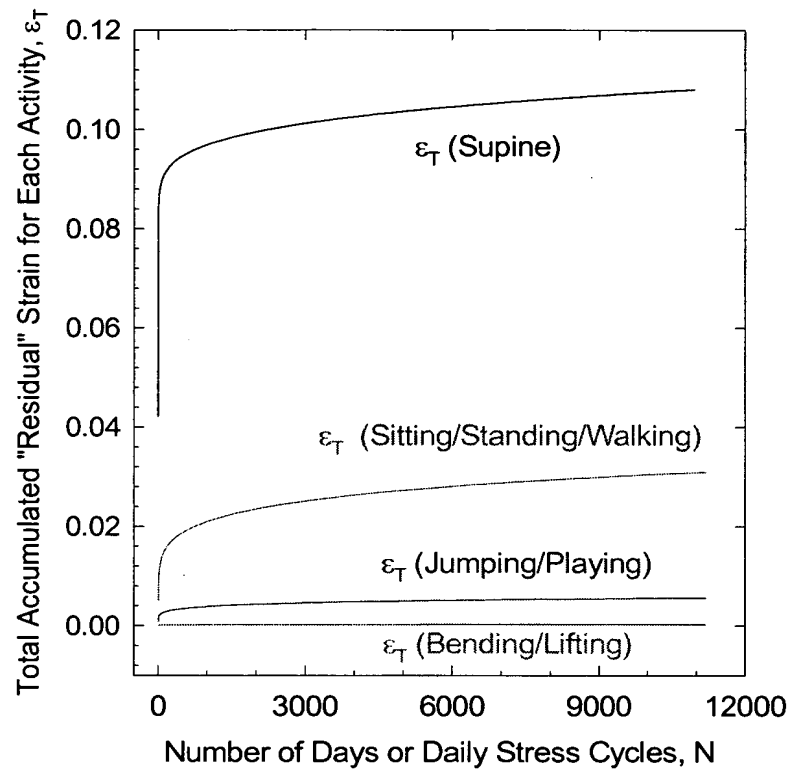
Fig. 12

Compressive Strain During "Resting" and
Maximum Strain During Activities